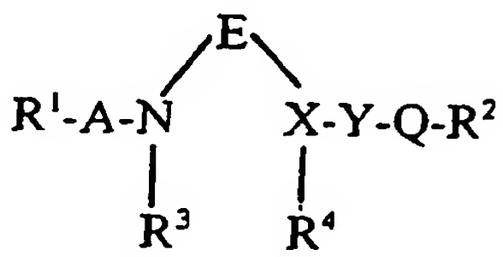
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (Currently Amended) A compound of the formula:



(I)

wherein R^1 is acyl;

R^2 is lower alkyl, lower alkoxy, lower alkylamino, lower alkenyl, lower alkenyloxy, lower alkenylamino, lower alkynyl, lower alkynyloxy, lower alkynylamino, cyclo (lower)alkyl, cyclo(lower)alkyloxy, cyclo(lower)alkylamino, aryl, aryloxy, arylamino, a heterocyclic group or amino substituted with a heterocyclic group, each of which may be substituted with a substituents(s); or acyl;

A is a single bond, -CO- or -SO_2-,

E is lower alkylene optionally substituted with substituent(s),

X is CH or N,

Y is a single bond, lower alkylene or -NR^5-, [[(]]wherein R^5 is hydrogen, lower alkyl, substituted-lower alkyl, an N-protective group, aryl, acyl or a heterocyclic group[[)]],

Q is -CH_2-, -CO-, -SO_2- or -N=CH-, and

R^3 and R^4 are each hydrogen or lower alkyl, or taken together are lower alkylene thereby forming a ring optionally condensed with a cyclic hydrocarbon or a heterocyclic ring, provided that when X is N, then 1) Y is a single bond, and Q is $-CH_2-$, -CO- or $-SO_2-$, or (2) Y is lower alkylene, and a pharmaceutically acceptable salt thereof; with the proviso that simultaneously A is not a single bond, E is not ethylene, X is not -CH-, Y is not -NH-, Q is not -CO- or SO_2- and R^3 and R^4 together are not ethylene.

Claim 2. (Currently Amended) The compound according to Claim 1, wherein

R^2 is aryl, aryloxy or arylamino, each aryl of which may be substituted with haolgen; pyridyl; or pyridylamino;

A is a single bond,

E is ethylene,

X is N,

Y is a single bond, lower alkylene or $-NR^5-$ [[(]]wherein R^5 is hydrogen, lower alkyl or an N-protective group[[)]],

Q is $-CH_2-$, -CO-, or $-SO_2-$, and

R^3 and R^4 taken together form ethylene.

Claim 3. (Previously Presented) The compound according to Claim 2, wherein

R^1 is lower alkanoyl, esterified carboxy, substituted or unsubstituted aroyl, lower alkylsulfonyl, substituted or unsubstituted arylsulfonyl, or cyclo(lower)alkylcarbonyl, and

R^2 is aryl or arylamino, each aryl of which may be substituted with halogen.

Claim 4. (Previously Presented) The compound according to Claim 3, wherein

R^1 is lower alkanoyl, lower alkoxycarbonyl, aroyl, aroyl substituted with halo(lower)alkoxy, lower alkylsulfonyl, arylsulfonyl, arylsulfonyl substituted with halogen, or cyclo(lower)alkylcarbonyl,

X is -CH-,

Y is a single bond, and

Q is -CO- or -SO_2-.

Claim 5. (Previously Presented) The compound according to Claim 3, wherein

R^1 is lower alkanoyl, lower alkoxycarbonyl, aroyl, aroyl substituted with halo(lower)alkoxy, lower alkylsulfonyl, arylsulfonyl, arylsulfonyl substituted with halogen, or cyclo(lower)alkylcarbonyl,

X is -N-,

Y is a single bond or lower alkylene, and

Q is -CO- or -SO_2-.

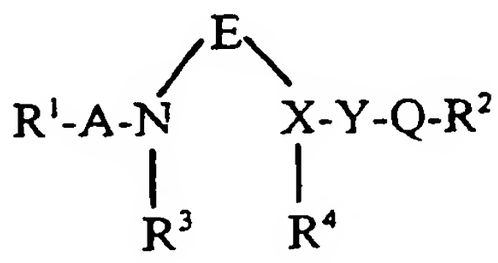
Claim 6. (Canceled)

Claim 7. (Previously Presented) The compound according to Claim 5, wherein

Y is a single bond, and

Q is -CO-.

Claim 8. (Currently Amended) A process for preparing a compound of the formula:



(I)

wherein R^1 is acyl,

R^2 is lower alkyl, lower alkoxy, lower alkylamino, lower alkenyl, lower alkenyloxy, lower alkenylamino, lower alkynyl, lower alkynyloxy, lower alkynylamino, cyclo (lower)alkyl, cyclo(lower)alkyloxy, cyclo(lower)alkylamino, aryl, aryloxy, arylamino, a heterocyclic group or amino substituted with a heterocyclic group, each of which may be substituted with a substituents(s); or acyl;

A is a single bond, -CO- or -SO_2-,

E is lower alkylene optionally substituted with substituent(s),

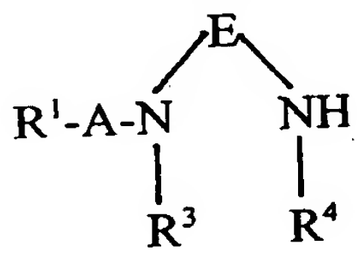
X is CH or N,

Y is a single bond, lower alkylene or -NR^5- [[(]]wherein R^5 is hydrogen, lower alkyl, substituted-lower alkyl, an N-protective group, aryl, acyl or a heterocyclic group[[)]],

Q is $-CH_2-$, $-CO-$, $-SO_2-$ or $-N=CH-$, and

R^3 and R^4 are each hydrogen or lower alkyl, or taken together are lower alkylene thereby forming a ring optionally condensed with a cyclic hydrocarbon or a heterocyclic ring, provided that when X is N, then 1) Y is a single bond, and Q is $-CH_2-$, $-CO-$ or $-SO_2-$, or (2) Y is lower alkylene, or a pharmaceutically acceptable salt thereof; with the proviso that simultaneously A is not a single bond, E is not ethylene, X is not -CH-, Y is not -NH-, Q is not $-CO-$ or SO_2- and R^3 and R^4 together are not ethylene, which comprises:

1) reacting a compound of the formula:

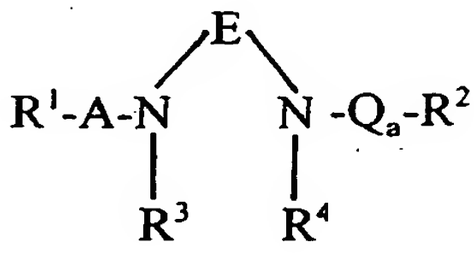


(II)

or its salt with a compound of the formula:

$$HO\text{-}Q_a\text{-}R^2 \qquad \text{(III)}$$

or its reactive derivative at the carboxy or sulfo group, or a salt thereof to provide a compound of the formula:

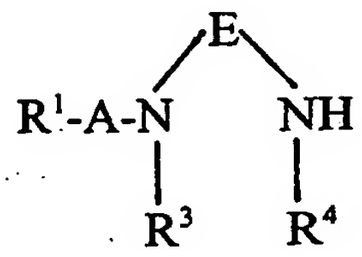


(Ia)

or its salt, in the above formulas, R^1, R^2, R^3, R^4, A and E are each as defined above, and

Q_a is $-CO-$ or $-SO_2-$.

(2) reacting a compound of the formula:

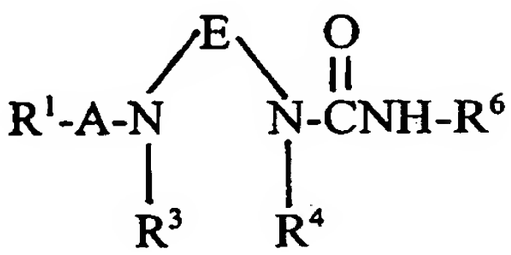


(II)

or its salt with a compound of the formula:

$$R^6\text{-NCO} \qquad \text{(IV)}$$

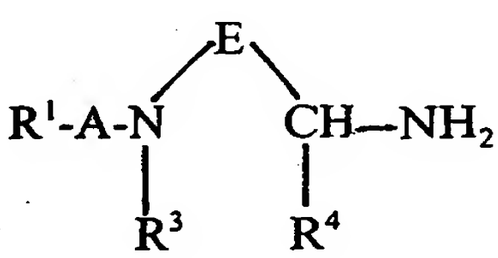
to provide a compound of the formula:



(Ib)

or its salt, wherein, in the above formulas, R^1, R^3, R^4, A and E are each as defined above, and R^6 is aryl which may be substituted with substituent(s); or pyridyl, or

(3) reacting a compound of the formula:

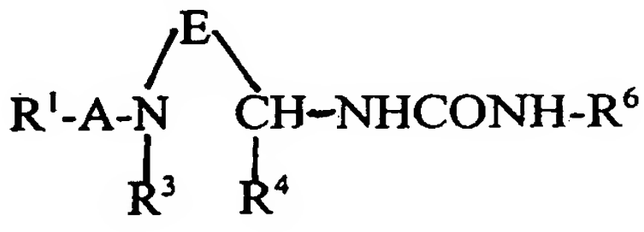


(V)

or its salt with a compound of the formula:

$$HO\text{-}Q_a\text{-}R^2 \qquad \text{(III)}$$

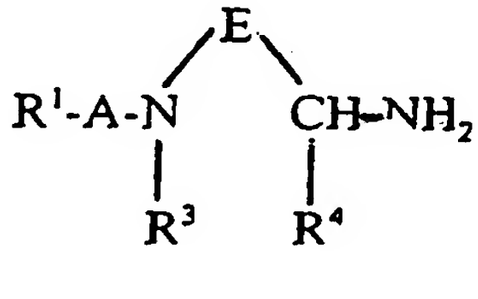
or its reactive derivative at the carboxy or sulfo group, or a salt thereof to provide a compound of the formula:



(Id)

or its salt, wherein, in the above formulas, R^1, R^2, R^3, R^4, A, E and Q_a are each as defined above, or

4) reacting a compound of the formula:

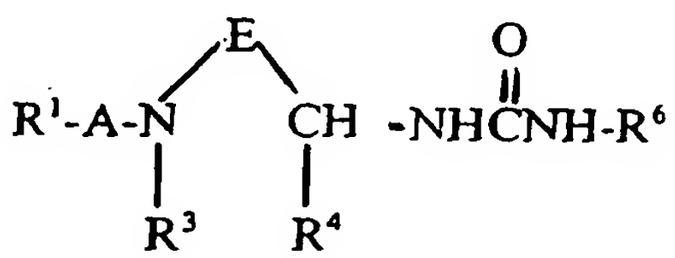


(V)

or its salt with a compound of the formula:

$$R^6 NCO \qquad (IV)$$

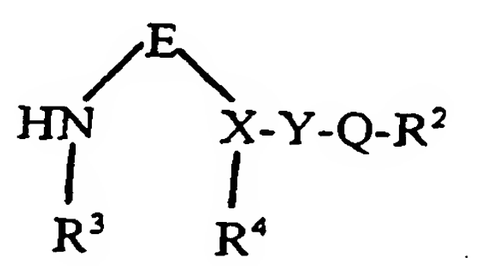
to provide a compound of the formula:



(Id)

or its salt, in the above formulas, R^1, R^3, R^4, R^6, A and E are each as defined above, or

5) reacting a compound of the formula:



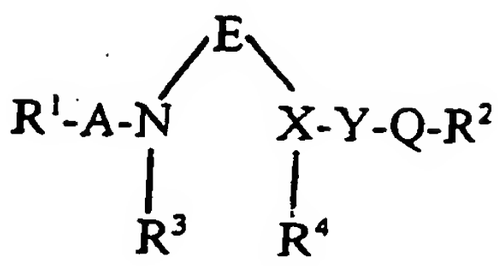
(VI)

or its salt with a compound of the formula:

$$R^1\text{-A-OH} \qquad (VII)$$

or its reactive derivative at the carboxy or sulfo group, or a salt thereof to provide a

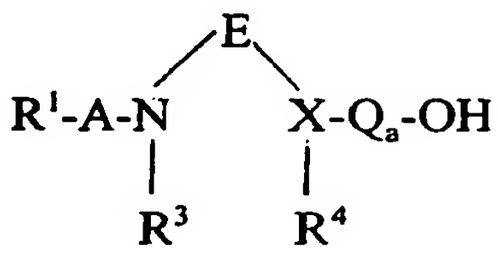
compound of the formula:



(I)

or its salt, in the above formulas, R^1, R^2, R^3, R^4, A, E, X, Y and Q are each as defined above, or

6) reacting a compound of the formula:

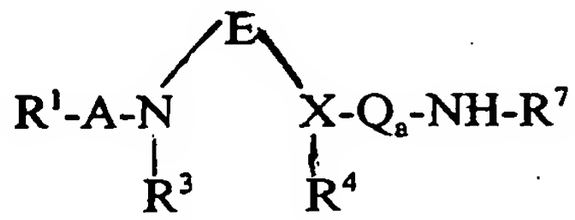


(VI)

or its reactive derivatives at the carboxy or sulfo group, or a salt thereof with a compound of the formula:

$$H_2N\text{-}R^7 \qquad (IX)$$

or its salt to provide a compound of the formula:

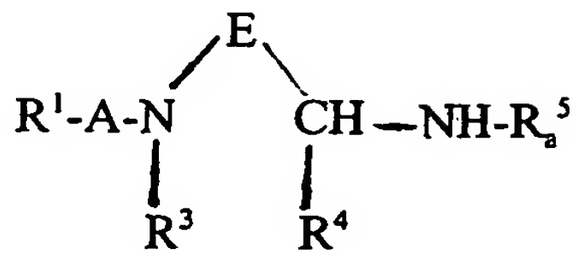


(Ie)

or its salt, in the above formulas, R^1, R^3, R^4, A, E, X and Q_a are each as defined above, and

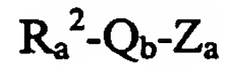
R^7 is lower alkyl, lower alkenyl, lower alkynyl, cyclo(lower)alkyl, aryl, or a heterocyclic group, each of which may be substituted with a substituents(s), or

7) reacting a compound of the formula:



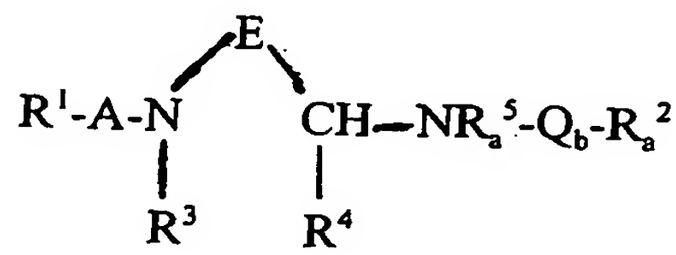
(X)

or its salt with a compound of the formula:



(XI)

to provide a compound of the formula:



(If)

or its salt, in the above formulas, R^1, R^3, R^4, A and E are each as defined above,

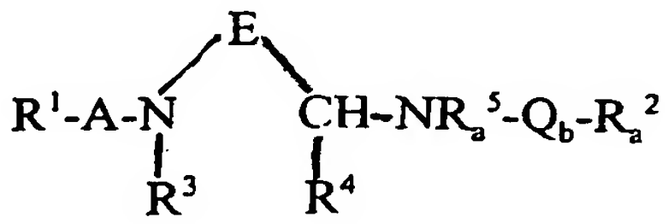
R_a^5 is an N-protective group,

R_a^2 is lower alkyl, lower alkenyl, lower alkynyl, cyclo(lower)alkyl, aryl, or a heterocyclic group, each of which may be substituted with a substituents(s),

Q_b is $-CH_2-$, $-CO-$, $-SO_2-$, and

Z_a is an acid residue, or

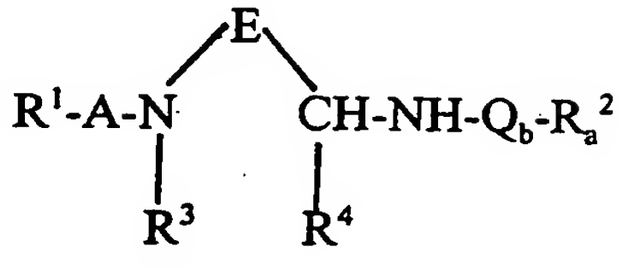
8) subjecting a compound of the formula:



(If)

or its salt to elimination of the N-protective group to provide a compound of

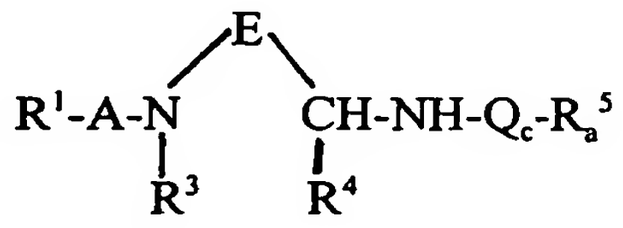
the formula:



(Ig)

or its salt, in the above formulas, R^1, R_a^2, R^3, R^4, A, E and Q_b, are each as defined above, or

9) reacting a compound of the formula:

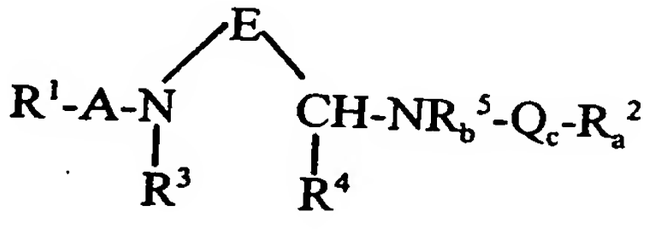


(Ih)

or its salt with a compound of the formula:

$$R_b^5\text{-}Z_b \qquad \text{(XII)}$$

to provide a compound of the formula:



(Ii)

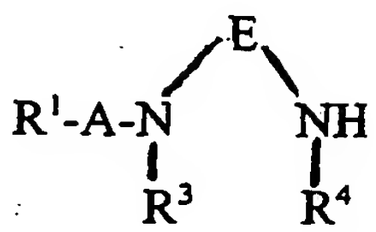
or its salt, in the above formulas, R^1, R_a^2, R^3, R^4, A and E are each as defined above,

Z_b is an acid residue,

Q_c is -CO-, and

R_b^5 is lower alkyl, or

10) reacting a compound of the formula:

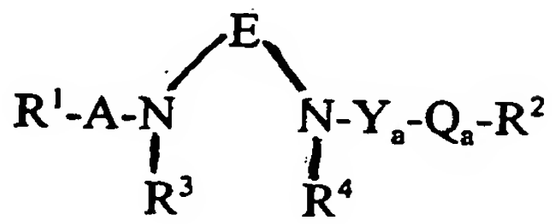


(II)

or its salt with a compound of the formula:

$$Z_c\text{-}Y_a\text{-}Q_a\text{-}R^2 \qquad \text{(XIII)}$$

to provide a compound of the formula:



(Ij)

or its salt, in the above formulas, R^1, R^2, R^3, R^4, A, E and Q_a are each as defined above,

Z_c is an acid residue, and

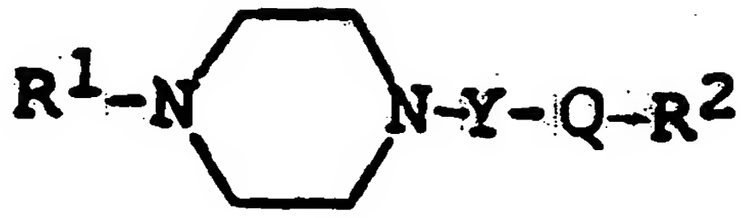
R_b^5 is lower alkylene.

Claim 9. (Previously Presented) A pharmaceutical composition, comprising:

a compound of Claim 1, as an active ingredient, in association with a pharmaceutically acceptable, substantially non-toxic carrier or excipient.

Claims 10-12. (Canceled)

Claim 13. (New) A compound of the formula:



wherein R^1 is lower alkanoyl, aroyl, aroyl substituted by halo(lower)alkoxy, arylsulfonyl, arylsulfonyl substituted by halogen, lower alkylsulfonyl or cyclo(lower)alkylcarbonyl;

R^2 is lower alkylamino, lower alkenylamino, lower alkynylamino, cyclo(lower)alkylamino, arylamino or an amino group substituted with a heterocyclic group which is optionally substituted with halogen;

Y is a single bond or lower alkylene; and

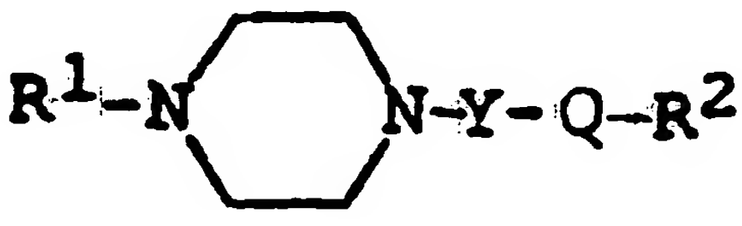
Q is -CO- or -SO_2-, and a pharmaceutically acceptable salt thereof.

Claim 14. (New) The compound according to Claim 13, wherein

R^2 is arylamino which optionally is substituted by halogen, pyridyl, or pyridylamino.

Claim 15. (New) The compound according to Claim 13, which is 1-acetyl-4-(4-fluorophenylcarbamoyl)piperazine.

Claim 16. (New) A process for preparing a compound of the formula:



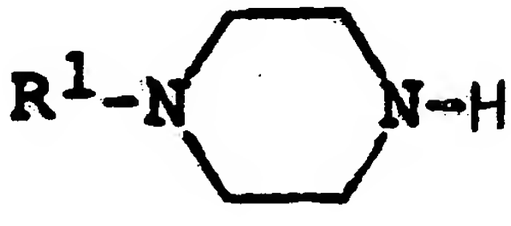
wherein R^1 is lower alkanoyl, aroyl, aroyl substituted by halo(lower)alkoxy, arylsulfonyl, arylsulfonyl substituted by halogen, lower alkylsulfonyl or cyclo(lower)alkylcarbonyl;

R^2 is lower alkylamino, lower alkenylamino, lower alkynylamino, cyclo(lower)alkylamino, arylamino, an amino group that is substituted by a heterocyclic group, optionally substituted by a substituents(s);

Y is a single bond or lower alkylene; and

Q is -CO- or $-SO_2-$, or a pharmaceutically acceptable salt thereof, which comprises:

1) reacting a compound of the formula:

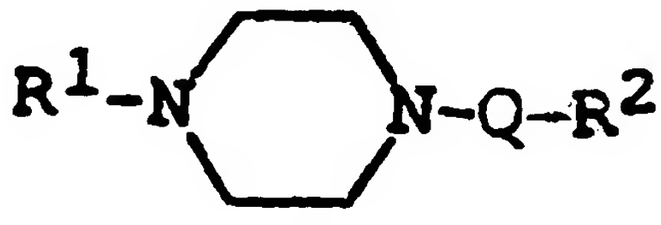


(II)

or its salt with a compound of the formula:

$$HO\text{-}Q\text{-}R^2 \qquad \text{(III)}$$

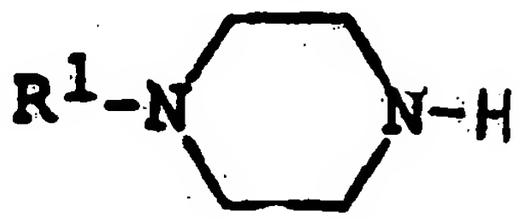
or its reactive derivative at the carboxy or sulfo group, or a salt thereof to provide a compound of the formula:



(Ia)

or its salt, in the above formulas, R^1, R^2 and Q are each as defined above;

(2) reacting a compound of the formula:

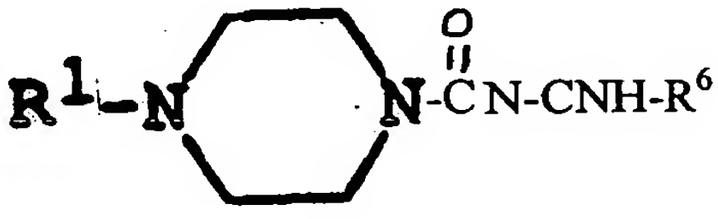


(II)

or its salt with a compound of the formula:

$$R^6\text{-NCO} \qquad \text{(IV)}$$

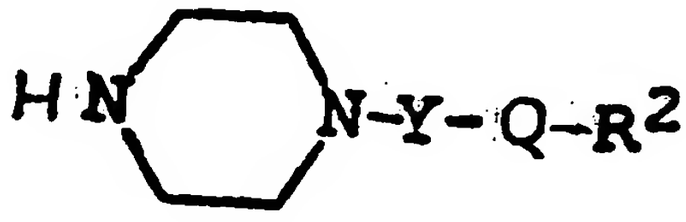
to provide a compound of the formula:



(Ib)

or its salt, wherein, in the above formulas, R^1 are each as defined above, and R^6 is aryl which may be substituted with substituent(s), or pyridyl, or

3) reacting a compound of the formula:



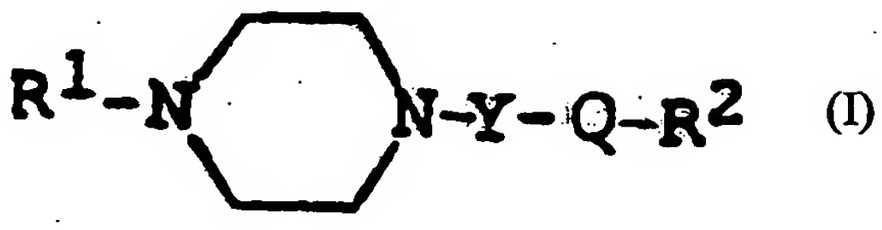
(VI)

or its salt with a compound of the formula:

$$R^1\text{-OH} \qquad \text{(VII)}$$

or its reactive derivative at the carboxy or sulfo group, or a salt thereof to provide a

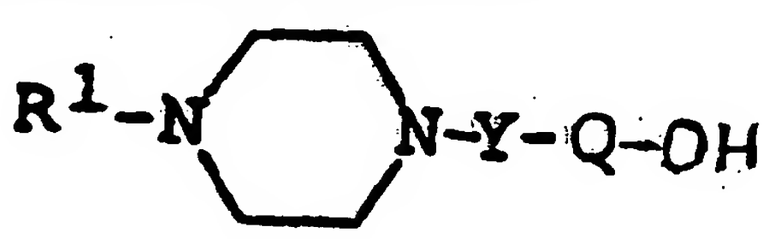
compound of the formula:



(I)

or its salt, in the above formulas, R^1, R^2 and Q are each as defined above, or

4) reacting a compound of the formula:

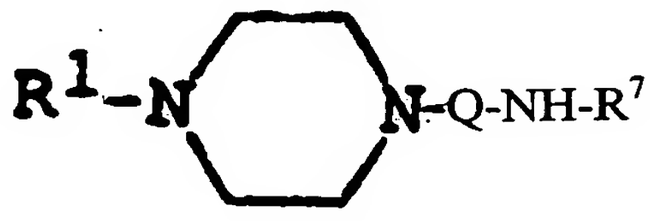


(VIII)

or its reactive derivatives at the carboxy or sulfo group, or a salt thereof with a compound of the formula:

$$H_2N\text{-}R^7 \qquad \text{(IX)}$$

or its salt to provide a compound of the formula:



(Ie)

or its salt, in the above formulas, R^1, A and Q_a are each as defined above, and

R^7 is lower alkyl, lower alkenyl, lower alkynyl, cyclo(lower)alkyl, aryl, or a heterocyclic group, each of which optionally is substituted with a substituents(s).

Claim 17. (New) A pharmaceutical composition, comprising:

a compound of Claim 13, as an active ingredient, in association with a pharmaceutically acceptable, substantially non-toxic carrier or excipient.

Claim 18. (New) A method for the therapeutic treatment of amnesia, dementia or schizophrenia, which comprises:

administering an effective amount of a compound of Claim 13 to mammals.

Claim 19. (New) The compound according to Claim 13, wherein R^1 is lower alkanoyl, benzoyl, benzoyl substituted by halo(lower)alkoxy, phenylsulfonyl, phenylsulfonyl substituted by halogen, lower alkylsulfonyl or cyclo(lower)alkylcarbonyl; R^2 is lower alkylamino, lower alkenylamino, lower alkynylamino, cyclo(lower)alkylamino, phenylamino or an amino group substituted with pyridyl, each of which is optionally substituted with halogen;

Y is a single bond or lower alkylene; and

Q is -CO- or -SO_2-, and a pharmaceutically acceptable salt thereof.

Claim 20. (New) The compound according to Claim 19, wherein R^2 is phenylamino which optionally is substituted by halogen, pyridyl, or pyridylamino and Y is a single bond.